Remarks/Arguments

Applicants have received and carefully reviewed the Final Office Action of the Examiner mailed October 28, 2008 and the Advisory Action mailed January 6, 2009. Currently, claims 29, 31-34, 36-37, 39-45, 47-56, and 58-70 remain pending. Claims 29, 31--34, 36-37, 39-45, 47-56, and 58-70 remain rejected. Favorable consideration of the following remarks is respectfully requested.

Claim Interpretation

In paragraph 2 of the Final Office Action, the Examiner has indicated that for purposes of examination, the electrodes as claimed will be interpreted to be current collectors, since the catalyst layer is already contained in the membrane.

In paragraph 3 of the Office Action, the Examiner states that claims 29-34, 36-45, 54-56 and 58-66 are drawn to method claims. The Examiner states these claims include, for example, "forming a first aperture ..." and "providing" various components. The Examiner states that since an assembled fuel cell having the structural requirements of the method claims would inherently have been formed by "providing" those components, a fuel cell having the structure required by the method claims is interpreted to having been formed by that method. This is not believed to be appropriate in the present case. For example, claim 54 recites a "laminating" step, and claim 63 recites "passing the first length of material, the proton exchange membrane, and the second length of material through a joining unit". Certainly, a fuel cell would not inherently be formed via the specific recited steps. The Examiner is directed to MPEP § 2112 IV, which states:

> The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art); *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is **necessarily present** in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " *In re*

Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999)...

(Emphasis added). It is readily apparent that at least some of the claimed method steps would not necessarily be used in forming a fuel cell.

Claim Rejections – 35 USC § 112

In paragraph 6 of the Office Action, the Examiner rejected claims 29-34, 35-37, 39-45, 47-56, and 58-70 under 35 U.S.C. 112, first paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Although Applicants respectfully disagree, in the spirit of cooperation, independent claims 29, 47, 54 and 63 have been amended to recite "the proton exchange member including a catalyst". This is believed to overcome the Examiner's rejection.

A second rejection appears to rely entirely upon an incorrect interpretation of a single figure of the instant specification, Fig. 7, rather than upon the disclosure of the specification as a whole. The Examiner has asserted that Fig. 7 of the instant specification depicts cells that would short when electrical contacts are made without a load. While it is a true statement that a cell in which the anode and cathode are connected "without a load" would be described as "shorted", the cells of Fig. 7 are not so connected. In the illustrative embodiment of Figure 7, electrical contact 750A is shown on the upper surface of electrode layer 710A, and electrical contact 750B is shown on the upper surface of electrode layer 710B. As will be seen by the fact that the electrical contacts are differentiated from the rest of the electrode layers of Fig. 7, the remaining portions of electrode layers 710A and 710B are insulating. (See for example, the electrode layers of Figs. 1 and 4 which are depicted prior to patterning of the upper and or lower surfaces.) Accordingly, electrical contacts 750A and 750B are separated by the insulating component of electrode layer 710A in the region 755A where direct electrical contact might be present. Those conductive features found on the lower surface of electrode layer 710A are not shown in Fig. 7, and so one cannot properly assert that they are present in a location which would enable a direct electrical connection between electrical contacts 750A and 750B other than through an external load. Granting for the

moment that an electrical connection may be made between contacts 750A and 750B, the connection would simply provide a series (or parallel) connection of the adjacent fuel cells, represented by the fuel cells the membranes of which are exposed through apertures 735A and 735B and the adjacent unnumbered apertures located adjacent to reference numerals 745A and 745B. Unshorted contacts, one on the top side of 710A and a second, unseen contact lying on the lower surface of 710B would then be available for connecting a load to the two cell series (or parallel) configuration.

It appears likely that the Examiner has mistaken the broken lines indicating alignment of elements in the vicinity of elements 760A and 760B of Fig. 7 for conductive features, has assumed that said features span the gap between electrode layers 710A and 710B created by the thickness of interposed membrane 740, and has assumed that such features, if they existed, are necessarily in electrical contact with corresponding features on the upper surface of 710B. Instead, the broken lines simply provide the stated function of indicating that certain features are aligned in Figure 7. The text at page 14, lines 9-19 indicates that in some non-limiting embodiments one electrical contact associated with 710A extends laterally from the vicinity of a first aperture into region 760A where the proton exchange membrane is not found and that a second electrical contact associated with 710B extends laterally from the vicinity of a second aperture into region 760B where the proton exchange membrane also is not found, that in that embodiment the electrical contacts overlap, and that in such embodiments lamination may, but not necessarily does, cause the contacts to become electrically connected. Anyone of ordinary skill in the art would certainly understand how to connect individual cells in series, in parallel, or in series-parallel and how to connect a load to the cells so connected.

In the Advisory Action, the Examiner states that page 14 of the instant specification states that electrical contact 750A on the top of electrode 710A may be electrically connected to the electrical contact 750B on the bottom electrode 710B. The Examiner argues that when this connection occurs, the cell would be shorted. Applicants respectfully disagree. Let's assume for the moment that electrical contact 750A is indeed electrically connected to electrical contact 750B. The only way the two corresponding adjacent fuel cells become "shorted", as the Examiner suggests, is if the remaining two

electrical contacts (not labeled in Figure 7) of the two adjacent fuels are also electrically connected together. Electrically connecting electrical contact 750A and electrical contact 750B merely connects the anode of the first fuel cell with the cathode of the adjacent second fuel cell. One skilled in the art would clearly understand that when such an electrical connection is made, the cathode of the first fuel cell would not be electrically connected to the anode of the adjacent second fuel cell without a load therebetween, as this would short the two fuel cells. For these reasons, the rejected claims are believed to fully comply with 35 U.S.C. 112, first paragraph.

Claim Rejections – 35 USC § 102

In paragraph 9 of the Office Action, claims 29, 30, 33, 34, 36-45, 47, 48, 54, 56, and 60-66 were rejected under 35 U.S.C. 102(b) as being anticipated by Pratt et al. (U.S. Patent No. 6,127, 058), hereinafter Pratt. After careful review, Applicant must respectfully disagree.

Turning first to claim 29, which recites:

> 29. A method of forming a fuel cell, comprising the steps of:
> providing a first electrode layer having a first surface and a second opposing surface, wherein at least a portion of the first surface is conductive;
> forming a first aperture defined by a first aperture surface through the first electrode layer;
> providing a second electrode layer having a first surface and a second opposing surface, wherein at least a portion of the first surface is conductive;
> forming a second aperture defined by a second aperture surface through the second electrode layer;
> providing a proton exchange member having a first surface and a second opposing surface, the proton exchange member including a catalyst;
> providing a conductive adhesive between the first electrode layer and the proton exchange member and between the second electrode layer and the proton exchange member;
> sandwiching the proton exchange member and the adhesive between the first electrode layer and the second electrode layer with the first and second apertures substantially free of the adhesive, where the first aperture of the first electrode layer is at least partially aligned with the second aperture of the second electrode layer, thereby exposing the proton exchange member, wherein the second surface of the first electrode layer is proximate the first surface of the proton exchange member and the first

surface of the second electrode layer is proximate the second surface of the proton exchange member;

providing an electrical connection between at least a portion of the first surface that is conductive of the first electrode layer and the proton exchange member; and

providing an electrical connection between at least a portion of the first surface that is conductive of the second electrode layer and the proton exchange member (emphasis added).

Pratt is said to teach an assembly that includes a membrane and two current collectors that are held together by an adhesive. The text at column 5, lines 9-13 is cited as providing the description of the adhesive in question. This passage of Pratt states:

> Obviously, the laminated structure comprising the MEA disposed between the two current collector assemblies must be held together. This can be accomplished by ultrasonically welding or by use of adhesives at the interfaces (emphasis added).

The underlined word in that passage is the sole occurrence of the words "adhesive" or "adhesives", and as such, is the only teaching of Pratt upon which the Examiner is relying. In the cited passage of Pratt, the use of adhesives is presented as an alternative to earlier described ultrasonic welding. Pratt does not appear to disclose a conductive adhesive in any form and, indeed, the word "conductive" does not appear in Pratt. Ultrasonic welding appears only in that same cited passage and in claim 20: "The planar fuel cell as described in claim 19, wherein the first and second planar current collector assemblies are bonded to each other by ultrasonic weld" (emphasis added). Note that the first and second planar current collector assemblies of Pratt are said to be bonded to each other, and that no components (e.g. current collectors) are said to be welded to the current collector assemblies or the MEA. In claim 19, the structures designated as the "current collectors" are insert molded into the thermoplastic frame of the current collector assemblies. More specifically, claim 19, from which claim 20 depends, states:

> "A planar fuel cell system, comprising:
> first and second planar current collector assemblies, each comprising an array of current collectors insert molded into a thermoplastic frame, each of the current collectors in the array having a plurality of apertures for passing reactant gases and having an interconnect tab embedded into the thermoplastic frame to provide a gas tight seal;
> a membrane electrode assembly, comprising a single sheet of a polymer electrolyte membrane having an array of anodes disposed on a first major

side and an array of corresponding cathodes disposed on a second opposing major side, all anodes being on the first major side of the sheet and all cathodes being on the second major side;
the membrane electrode assembly disposed between the first and second planar current collector assemblies such that said array of anodes is adjacent to the array of current collectors in the first current collector assembly and said array of cathodes is adjacent to the array of current collectors in the second current collector assembly;
the first and second planar current collector assemblies bonded to each other at their perimeters such that a gas tight seal is formed about the membrane electrode assembly;
the interconnect tabs from the first and second planar current collector assemblies arranged to provide an electron transfer path from an anode to a neighboring cathode such that the electron transfer path does not traverse the thickness of the polymer electrolyte membrane; and
whereby a fuel gas is distributed to each of the plurality of anodes through the apertures in the anode current collectors and whereby an oxidant gas is distributed to each of the plurality of cathodes through the apertures in the cathode current collectors."

It should be noted that the only regions in which the current collector/frame assemblies appear to contact each other are outside of the perimeter of the MEA membrane. Pratt explicitly states at col. 3, lines 53-61 that the current collector 25 is "within the perimeter of the MEA and the interconnect means is outside the perimeter of the MEA." Pratt continues, "the plastic frame 24 forms a gas tight integral seal around the interconnect means." The current collector(s) are said to be not located in the region in which the seal is formed. Accordingly, the only ultrasonically weld/seal, or adhesive seal, which Pratt appears to specifically teach, appears to be around the perimeter of the plastic frame outside the perimeter of the MEA, and specifically excludes the region where the current collectors are located, i.e., within the perimeter of the MEA.

Claim 29 recites "providing a conductive adhesive between the first electrode layer and the *proton exchange member* and between the second electrode layer and the *proton exchange member*", and "sandwiching the proton exchange member and the adhesive between the first electrode layer and the second electrode layer with the first and second apertures substantially free of the adhesive". Nowhere does Pratt appear to specifically teach providing an adhesive, particularly a conductive adhesive, in any region of a fuel cell where the adhesive would be between the proton exchange member and the structure corresponding to the current collectors of Pratt. The Examiner may be

attempting to argue that it would somehow be inherent in Pratt that an adhesive could be provided between the current collector assemblies 21, 22 and the MEA 23 (see Figure 3 of Pratt). However, Applicants submit that there is no basis for such an interpretation. MPEP § 2112 IV states:

> The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art); *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is **necessarily present** in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999)...
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> "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original).

(Emphasis added). Applicants submit that the claimed method steps, including the method steps of "providing a conductive adhesive between the first electrode layer and the *proton exchange member* and between the second electrode layer and the *proton exchange member*", and "sandwiching the proton exchange member and the adhesive between the first electrode layer and the second electrode layer with the first and second apertures substantially free of the adhesive", are not necessarily present in Pratt. This would appear to be particularly so since it appears that the adhesive of Pratt is provided between the perimeter of the plastic frames of the current collector assemblies 21, 22, well outside of the current collectors and the MEA.

In the Advisory Action, the Examiner states:

> According to Applicant, since the word "adhesive" or "adhesives" occurs only once in the reference, it can be ignored and the reference does not actually teach an adhesive – because it is only mentioned once.

If the Examiner reviews Applicants' previous response, no such assertion was made. Applicants merely pointed out that there was only one reference to "adhesive" in Pratt, and that this was the only disclosure that the Examiner can rely upon. As detailed above, this limited disclosure in Pratt is clearly insufficient to anticipate the specific method steps of "providing a conductive adhesive between the first electrode layer and the *proton exchange member* and between the second electrode layer and the *proton exchange member*", and "sandwiching the proton exchange member and the adhesive between the first electrode layer and the second electrode layer with the first and second apertures substantially free of the adhesive", as recited in claim 29.

The Examiner is reminded that "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). (See MPEP § 2131). Also, in *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369-1370 (Fed. Cir. 2008), the Federal Circuit recently noted:

> As we have stated numerous times (language on which VeriSign relies), in order to demonstrate anticipation, the proponent must show "that the four corners of a single, prior art document describe every element of the claimed invention." *Xerox*, 458 F.3d at 1322 (quoting *Advanced Display Sys., Inc. v. Kent State Univ.*, 212 F.3d 1272, 1282 (Fed. Cir. 2000)). This statement embodies the requirement in section 102 that the anticipating invention be "described in a printed publication," and is, of course, unimpeachable. But it does not tell the whole story. Because the hallmark of anticipation is prior invention, the prior art reference—in order to anticipate under 35 U.S.C. § 102—must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements "arranged as in the claim." Connell v. Sears, Roebuck & Co., 722 F.2d 1542, 1548 (Fed. Cir. 1983).
>
> The meaning of the expression "arranged as in the claim" is readily understood in relation to claims drawn to things such as ingredients mixed in some claimed order. In such instances, a reference that discloses all of the claimed ingredients, but not in the order claimed, would not anticipate, because the reference would be missing any disclosure of the limitations of the claimed invention "arranged as in the claim." But the "arranged as in the claim" requirement is not limited to such a narrow set of "order of limitations" claims. Rather, our precedent informs that the "arranged as in the claim" requirement applies to all claims and refers to the need for an anticipatory reference to show all of the limitations of the claims arranged or combined in the same way as recited in the claims, not merely in a

particular order. The test is thus more accurately understood to mean "arranged or combined in the same way as in the claim."

Clearly, Pratt does not disclose each and every element as set forth in the claim, nor all elements of the claim "arranged as in the claim", as is required for anticipation. Nor would there appear to be any reason or motivation for modifying Pratt to arrive at the specific method recited in claim 29. For these and other reasons, claim 29 is believed to be clearly patentable over Pratt. For similar and other reasons, independent claim 54 is also believed to be clearly patentable over Pratt.

Now turning to claim 47, which recites:

> 47. A fuel cell comprising:
> a first electrode comprising:
> a non-conductive substrate, the non-conductive substrate having a first electrode top surface, a first electrode bottom surface, and a first electrode thickness defined by a first distance between the first electrode top surface and the first electrode bottom surface;
> a first electrode aperture through the first electrode thickness defined by a first electrode aperture surface;
> a second electrode comprising:
> a second electrode top surface;
> a second electrode bottom surface;
> a second electrode thickness defined by a second distance between the second electrode top surface and the second electrode bottom surface;
> a second electrode aperture through the second electrode thickness defined by a second electrode aperture surface;
> a first conductive layer provided on at least a portion of the first electrode top surface, at least a portion of the first electrode bottom surface, and one or more of at least a portion of the first electrode aperture surface, wherein the first conductive layer on the one or more of the at least a portion of the first electrode aperture surface provides an electrical connection between the first conductive layer on the first electrode top surface and the first conductive layer on the first electrode bottom surface;
> a second conductive layer provided on at least a portion of the second electrode top surface;
> a proton exchange member in electrical contact with and disposed between the first conductive layer and the second conductive layer, the proton exchange member including a catalyst;
> wherein, the first electrode aperture is at least partially aligned with the second electrode aperture, thereby exposing the proton exchange member (emphasis added).

In rejecting independent claim 47, the Examiner makes reference to the adhesive

discussed above and asserts that it necessarily must be conductive; however, as seen below, claim 47 does not include an adhesive as a required element and the word "adhesive" does not appear in the claim.

The fuel cell recited in claim 47 is differentiated from the fuel cells of Pratt at least in that the first electrode comprises a non-conductive substrate with a first electrode top surface, a first electrode bottom surface, a first electrode aperture defined by a first electrode aperture surface, and a first conductive layer provided on at least a portion of the first electrode top surface, at least a portion of the first electrode bottom surface, and one or more of at least a portion of the first electrode aperture surface.

The fuel cells of Pratt do not appear to include an electrode with two conductive outer surfaces and an inner non-conductive substrate. Pratt appears to contemplate two current collector structures. The first is described at column 3, lines 52-59 as comprising current collectors 25 insert molded into a plastic frame 24 as depicted in Fig. 2. As depicted in Fig. 2, each of the six current collectors 25 associated with one of the two frames appears to be a single homogeneous sheet of material. Pratt does not appear to describe any structure which could be interpreted as layers to the current collectors of Fig. 2, and certainly makes no mention of a non-conductive intervening layer.

The second current collector structure of Pratt is that of Fig. 4 which has been discussed extensively in earlier Responses. As noted above, the discussion of Fig. 4 is found in a single paragraph at column 5, lines 8-29 where the plastic film is characterized as: "FIG. 4 depicts an embodiment wherein the current collector assembly is fabricated in a very thin and flexible format by replacing the plastic frame with a plastic film 44 that has metal current collectors 45". Therefore, the functional characteristics attributable to the plastic film 44 would appear to be no more than those of the perimeter frame 24. The cited paragraph provides no additional structure to the depiction of Fig. 4 in which a single layer of metal has been applied to a single side of plastic film. Thus, like above, there is no non-conductive intervening layer. As such, Fig. 4 of Pratt does not teach a non-conductive substrate with a first electrode top surface, a first electrode bottom surface, a first electrode aperture defined by a first electrode aperture surface, and a first conductive layer provided on at least a portion of the first electrode top surface, at least a portion of the first electrode bottom surface, and one or more of at least a portion of the

first electrode aperture surface, as recited in claim 47. Notably, and in the § 103(a) rejection of claims 58-59, discussed below, the Examiner has expressly acknowledged that the contacts of Pratt "are only on one side of the non-conduction portion of the current collector." As such, Applicants do not understand how the Examiner can assert that Pratt somehow discloses each and every element as set forth in the claim, and that all of the elements are "arranged as in the claim", as is required for anticipation. Nor does there appear to be any reason or motivation for modifying Pratt to arrive at the fuel cell of claim 47. For these and other reasons, claim 47 is believed to be clearly patentable over Pratt.

In the Advisory Action, the Examiner states:

> Applicant can also look at Figure 3 of Pratt et al., where the conductive connections (26) and (32) are connected through the plastic film when the connection is made, for example, on the top electrode (see also Figure 4). This also applies to claim 63.

This is not understood. In Figure 3 of Pratt, the upper current collector frame 22 includes a conductive coating on the bottom surface of the tabs 26 (presumably an extension of the current collector 25 of the upper current collector frame 22, while the lower current collector frame 21 includes a conductive coating on the top surface of the tabs 26. The MEA assembly 23 does not extend out to the tabs 26, but rather stays within the perimeter of the frames. Thus, when the frames are brought together (and presumably ultrasonically welded or held together by an adhesive) the conductive surface on the lower side of the upper tabs 26 will engage the conductive surface on the upper side of the lower tabs 26. It is not seen how this discloses a non-conductive substrate with a first electrode top surface, a first electrode bottom surface, a first electrode aperture defined by a first electrode aperture surface, and a first conductive layer provided on at least a portion of the first electrode top surface, at least a portion of the first electrode bottom surface, and one or more of at least a portion of the first electrode aperture surface, as recited in claim 47. Certainly, nothing here would suggest a non-conductive substrate with a first electrode aperture defined by a first electrode aperture surface, and first conductive layer provided on at least a portion of the first electrode aperture surface. No such aperture is even seen in Pratt. As such, Applicants respectfully request clarification

on which of the elements shown in Figure 3 (or Figure 4) correspond to each and every element of claim 47. For these and other reasons, claim 47 is believed to be clearly patentable over Pratt.

Turning now to claim 63, which recites:

> 63. A method of forming a plurality of fuel cells, comprising the steps of:
>
> providing a first length of non-conductive material having a first plurality of apertures therethrough and a first plurality of electrical contacts therethrough;
>
> providing a second length of material having a second plurality of apertures therethrough and at least a second electrical contact;
>
> providing a proton exchange member, the proton exchange member including a catalyst;
>
> passing the first length of material, the proton exchange member, and the second length of material through a joining unit, wherein the proton exchange member is between the first length of material and the second length of material, the first plurality of apertures and the second plurality of apertures are at least partially aligned thereby exposing the proton exchange member therebetween, and the proton exchange member is in electrical contact with the first plurality of electrical contacts and the second electrical contact; and
>
> laminating the first length of material, the proton exchange member, and the second length of material as they pass through the joining unit (emphasis added).

For similar reasons to those discussed above, claim 63 is believed to be clearly patentable over Pratt. In addition, in attempting to support the rejection of claims 33-35, 42, 43, 54, and 56, the Examiner has characterized the plastic film as the frame and the metal current collector as two conductive surfaces in which the solid current collector also serves as a through contact. However, this interpretation does not appear to disclose a length of non-conductive material having a first plurality of electrical contacts therethrough. The conductive portions of the current collectors disclosed by Pratt do not appear to be described as anything other than monolithic sheets of conductor regions which are either supported by a frame or supported on a single side of a plastic film. In the § 103(a) rejection of claims 58-59, discussed below, the Examiner has expressly acknowledged that the contacts of Pratt "are only on one side of the non-conduction portion of the current collector." As such, it is not understood how Pratt can disclose a length of non-conductive material having a first plurality of electrical contacts therethrough, as recited

in claim 63. For these additional reasons, claim 63 is believed to be clearly patentable over Pratt.

Moreover, claim 63 is a method claim that includes specific method steps that are not present in Pratt. For example, claim 63 recites that step of passing the first length of material, the proton exchange member, and the second length of material through a joining unit, and laminating the first length of material, the proton exchange member, and the second length of material as they pass through the joining unit. The Examiner appears to be suggesting that each of these steps is somehow inherent in Pratt. However, Applicants submit that there is no basis for such an interpretation. MPEP § 2112 IV states:

> The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art); *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is **necessarily present** in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999)...
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> "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original).

(Emphasis added). Applicants submit that the claimed method steps, including the steps of passing the first length of material, the proton exchange member, and the second length of material through a joining unit, and laminating the first length of material, the proton exchange member, and the second length of material as they pass through the joining unit, are not necessarily present in Pratt. There are many ways of joining the elements together including ultrasonic welding, etc., without passing the first length of material, the proton exchange member, and the second length of material through a

joining unit, and laminating the first length of material, the proton exchange member, and the second length of material as they pass through the joining unit, as recited in claim 63. For these additional reasons, claim 63 is believed to be clearly patentable over Pratt.

Claim Rejections – 35 USC § 103

Claims 58-59 were rejected under 35 U.S.C. 103(a) as being unpatentable over Pratt in view of Diekmann et al. (U.S. Patent No. 6,268,076), hereinafter Diekmann. After careful review, Applicants must respectfully traverse this rejection. "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). (MPEP § 2143.03). As discussed above, nowhere does Pratt appear to disclose each and every element of claim 54. Diekmann et al. does not appear to remedy the noted shortcomings of Pratt. As such, claim 54 is believed to be clearly patentable over both references. For similar and other reasons, dependent claims 58-59, which depend from claim 54 and include significant additional distinguishing features, are also believed to be clearly patentable over Pratt in view of Diekmann.

In addition, the cited portion of Diekmann, claim 12, appears to describe a current collector comprising a base and a contact element welded or brazed to a ridge of the base, said contact element being connected in an electrically conducting manner to the electrode of the fuel cell. The current collector of Diekmann does not appear to have connections that are "enveloped" in conductive material in claim 12 and if they did, it would appear to merely thicken the conducting assembly without providing either the missing adhesive or the missing length of non-conductive material having a first plurality of electrical contacts therethrough as found in independent claim 54. Providing additional conducting material around the conductive tabs 46 of Pratt as suggested by the Examiner does not appear to be taught by Diekmann, and would not appear to provide an electrical connection to the opposite of the polymeric film of Pratt since the conductive tabs (26,46) of Pratt are either simple extensions, e.g., wires, outside the frame, as in Fig. 2 or are features on the same surface of the polymeric film 45 as the metal current collectors 45 as may clearly be seen in Fig. 4. The Examiner is reminded that she has insisted that the current collectors 45 of Fig. 4, and by extension their continuations, the

tabs 46, do not include the plastic film 44 when it was argued that the opposed surfaces of the metal current collector provided the first and second conductive surfaces in electrical contact with each other. Additional conductive material applied "on all sides of the electrode tabs" 46 would only serve to thicken them. As taught by Pratt, the only connections made by the tabs 46 appear to cross the plane of the membrane electrode assembly, and so they only need to be accessible on that side of the polymeric film. As such, adding an electrode on the other side would appear to serve no purpose.

Claim 55 was rejected under 35 U.S.C. 103(a) as being unpatentable over Pratt in view of Simonton (U.S. Patent No. 4,906,536), hereinafter Simonton. After careful review, Applicant must respectfully disagree. Simonton is said to teach, at column 3, lines 12-25, dicing an array after it is formed. Notably, the "array" of Simonton is a "tubelet panel of fabric face sheets and parallel, continuous film partition strips normal to the face sheets". The fabric tubelet panel is apparently then cut to length and used in the fabrication of a battery electrode. As such, this merely constitutes fabrication and size selection of a component, akin to cutting a component wire to length, rather than dicing single completed fuel cells from a continuous plurality of completed fuel cells. It has been acknowledged by the Examiner that Pratt fails to teach dicing the fuel cell array after it is formed. Simonton does not appear to teach dicing a fuel cell or other completed array of batteries. Applicants have found nothing in Simonton which remedies the deficiencies of Pratt as discussed above and applied to independent claim 54 from which claim 55 depends and to which it adds significant distinguishing features and therefore respectfully request that the rejection be withdrawn.

Claims 31 and 32 were rejected under 35 U.S.C. 103(a) as being unpatentable over Pratt in view of Stanley (U.S. Published Patent Application No. 2004/0053100), hereinafter Stanley. After careful review, Applicant must respectfully disagree. As detailed above, independent claim 29, from which claims 31 and 32 depend is believed to be clearly patentable over Pratt. Stanley is said to provide claimed membrane and catalyst materials acknowledged to be missing from Pratt. Nothing in Stanley appears to remedy the deficiencies of Pratt as applied to claim 29. Accordingly, Applicants respectfully request that the rejections of claims 31 and 32 be withdrawn.

Conclusion

In view of the foregoing, all pending claims 29, 31-34, 36-37, 39-45, 47-56, and 58-70 are believed to be in a condition for allowance. Reexamination and reconsideration are respectfully requested. If a telephone conference might be of assistance, please contact the undersigned attorney at (612) 359-9348.

Respectfully Submitted,

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